

REMARKS

This application is amended in a manner believed to place it in condition for allowance at the time of the next Official Action.

Claims 27, 29, 34, 35, 39, 40, 44 and 45 are amended. Support for the amended claims may be found generally throughout the specification, e.g., paragraphs 17, 18, 20 and 27.

Claims 27-49 remain pending in the application.

The Official Action rejects claims 34, 35, 44, and 45 under 35 U.S.C. 112, second paragraph, for being indefinite. This rejection is respectfully traversed.

Specifically, claims 34 and 44 are rejected for reciting the term " T_n ". However, this term is part of a formula that corresponds to a Polyhedral Oligomeric Silsesquioxane composition, which is known to one of ordinary skill in the art as, in general terms, $R_n(\text{SiO}_{1.5})_n$. Thus, as it is clear that T represents the " $\text{SiO}_{1.5}$ " portion of the formula, the claims are amended in a manner consistent with the knowledge of one skilled in the art.

Claims 35 and 45 are rejected for reciting "polyeterimide". However, this term is referred to in the claim as PEI, which to one of ordinary skill in the art is shorthand for polyetherimide. Accordingly, the claims are amended in a manner consistent with the knowledge of one of ordinary skill in the art.

Therefore, withdrawal of the rejection is respectfully requested.

Claims 27-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over KIRJAVAINEN WO 2001/19596 (KIRJAVAINEN) in view of LEE et al. WO 2001/72885 (LEE). This rejection is respectfully traversed.

KIRJAVAINEN discloses a method and apparatus for making a plastic film and a plastic film produced according to the method. A cavitation agent is mixed into the plastic material. The cavitation agent makes cavities in the plastic material when the plastic film is stretched. The cavities are further expanded by gas. KIRJAVAINEN discloses that the filling material can be calcium carbonate or some oily substance. However, KIRJAVAINEN fails to disclose or suggest adding a POS(S) chemical as the cavitation agent.

LEE discloses the use of nanostructured POSS chemicals in polymeric materials and products. LEE also fails to disclose or suggest that POS(S) chemicals could be used as a cavitation agent and that POS(S) chemicals make a porous film structure that can be electrically charged.

The position of the Official Action is that LEE suggests that the porosity of the polymer can be improved by the POSS chemical, as the structure of the POSS chemicals is hollow, which creates porosity in the polymer structure. The hollow structure may be seen, for example, in Figure 3 of LEE. The

hollow structures of the POSS chemicals have been utilized, for instance, in thin filter membranes where voids in the POSS molecules form tiny holes in the membranes.

Nevertheless, LEE fails to disclose or suggest that the POSS chemicals could be used as cavitation agents.

The position of the Official Action is that the affinity/compatibility of the POSS chemicals can be tailored, as discussed on page 8 of LEE, "to a desired degree of incompatibility, which would allow the joint surface of the plastic and the POSS to tear when the plastic is stretched, forming the cavitation bubbles".

However, this interpretation of LEE is incorrect. LEE solely discloses that one may tailor the POSS chemicals so that they selectively reinforce the polymer. In order to obtain this reinforcement, LEE requires the POSS chemicals to be present in a nanosized form in the polymer. See, e.g., page 8 of LEE, first paragraph, last four lines. Moreover, LEE discloses that the POSS chemicals are prevented from forming agglomerated domains, and that agglomeration of particulate fillers has been a problem that has traditionally plagued compounders and molders. See, e.g., page 8 of LEE, second paragraph.

Thus, one of ordinary skill in the art would have been strongly discouraged from adding POSS chemicals that are, at least in part, in agglomerates to KIRJAVAINEN, as LEE teaches

that agglomeration of POSS chemicals is a problem, limiting their use to "nanostructures" or "nanosizes".

Applicants, however, have determined that POSS chemical agglomerates have an important role in nucleating cavities in the polymer structure. Without the POSS agglomerates, i.e., when only nanosized POSS is present, there is no cavitation. Thus, the reinforcement of the polymer as taught by LEE has nothing to do with cavitation.

Therefore, the proposed combination cannot render obvious the claimed invention, and withdrawal of the rejection is respectfully requested.

In view of the present amendment to the claims and the foregoing remarks, applicants believe that the present application is in condition for allowance at the time of the next Official Action. Allowance and passage to issue on that basis is respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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